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A CLINICAL STUDY OF GREEVABASTI WITH KARPASASTHYADI TAILA IN CERVICAL SPONDYLOSIS

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ABSTRACT

Cervical Spondylosis is one among the degenerative conditions affecting the cervical spine and is commonly identified in *Ayurveda* with *Vataja Nanatmaja Vikaras* like *Manyastambha, Greevastambha*,etc. The word 'Cervical Spondylosis' and its treatment should be viewed from the point of *Vata Vyadhi* only. *Snehana* and *Swedana* are the prime modalities of treatment in the management of *Vata Vyadhis*. The selection of *Bahya Snehana* & *Swedana* is primarily based on the site of pathology and relevance of *GreevaBasti* can be justified as it is applied directly over the affected region. The formulation *Karpasasthyadi Taila* is specifically indicated in all *Vata Vyadhis* as it is described as '*Sarva Anilapaham'*. Hence, a clinical study was undertaken where in 50 patients of Cervical Spondylosis between the age group of 16-70 years were selected and subjected to *GreevaBasti* with *Karpasasthyadi Taila* performed for a period of 7 days. The data collected were analyzed by subjecting to statistical methods such as 'Wilcoxon signed Rank Test' to assess the therapeutic effect of *GreevaBasti* on subjective and objective parameters of Cervical Spondylosis. The observation revealed maximum incidence in *Parihani Avastha* i.e., between 41–70 years of age. All the patients presented with *Samyak Swinna Lakshanas* and the mean of maximum temperature tolerated by patients was 42.57 degree Celsius. The Wilcoxon signed Rank Test revealed statistically significant result in relieving most of the signs and symptoms of Cervical Spondylosis.

Keywords: *GreevaBasti*, *Karpasasthyadi Taila*, *Vata Vyadhi*, Cervical Spondylosis

INTRODUCTION

Ayurveda is not just a science of life; it is indeed a way of life. The speedy-greedy man who violates this way of life by his modified and restless lifestyle may gets entangled in different degenerative diseases even before entering into the degenerative phase of old age. Degenerative joint disease commonly troubles the human being causing pain, thereby, considerably reduces the human activity in terms of social and professional life. Cervical Spondylosis[1, 2, 3] is also one such degenerative condition affecting the cervical spine which causes neck pain and may even lead to cervical spondylotic myelopathy. Interna-

tionally, Cervical spondylotic myelopathy is the most common cause of non-traumatic spastic paraparesis & quadriparesis, in one report 23.6% of patients of latter had Cervical spondylotic myelopathy (Moore, 1997). Cervical Spondylosis may affect males earlier than females. Another study (Rochester, Hinnestova) has reported that the annual incidence of Cervical Radicular symptoms to be 83.2 per 1,00,000 with a prevalence of 3.5 per 1,000 population. Degenerative disc disorders can be included under the heading of *Vata Vyadhi*. Hence, the word 'Cervical Spondylosis' & its treatment should be viewed from the point of *Vata Vyadhi* only. Cervical Spondylosis is commonly identified in *Ayurveda* with *Vataja Nanatmaja Vikaras* like *Manyastambha, Greevastambha*, etc. *Snehana* and *Swedana* are the prime modalities of treatment in the management of *Vata Vyadhis*.[4] *GreevaBasti*, as an external therapeutic measure which produces *sthanika snehana* and *swedana* effect can be adopted in the management of Cervical Spondylosis. Eventhough, *GreevaBasti* is not mentioned directly in the classics; it has to be considered as the procedure which has evolved from the procedure *ShiroBasti* and *AkshiTarpana*. The selection of *Bahya Snehana* & *Swedana* is primarily based on the site of pathology and relevance of *GreevaBasti* can be justified as it is applied directly over the affected region. The formulation *Karpasasthyadi Taila*[5, 6] described in *Sahasrayoga* is specifically indicated for *Pana*, *NasyaKarma, Abhyanga* and it is described as '*Sarva Anilapaham'* as it can be employed in all *Vata Vyadhis*. So, the same was employed for *GreevaBasti* in the management of Cervical Spondylosis. Thus, by considering the above factors, a clinical study was undertaken to evaluate the therapeutic efficacy of *GreevaBasti* with *Karpasasthyadi Taila* in Cervical Spondylosis.

OBJECTIVES OF THE STUDY

- To evaluate the therapeutic effect of *GreevaBasti* with *Karpasasthyadi Taila* in the management of Cervical Spondylosis.
- To analyse and standardise the formulation *Karpasasthyadi Taila.*

RESEARCH QUESTION

- Whether any improvement is seen in *GreevaBasti* with *Karpasasthyadi Taila* in the management of Cervical Spondylosis?

HYPOTHESIS

H^0: There is no significant therapeutic effect of *GreevaBasti* with *Karpasasthyadi Taila* in Cervical Spondylosis.

H^1: There is significant therapeutic effect of *GreevaBasti* with *Karpasasthyadi Taila* in Cervical Spondylosis.

MATERIALS AND METHODS

Source of Data

- **Literature Source:** All the *Ayurvedic* literature, literatures of allied science, contemporary texts, journals and websites about *GreevaBasti*, *Karpasasthyadi Taila* and Cervical Spondylosis were reviewed and documented in study.
- **Sample Source:** 50 patients coming under the inclusion criteria approaching the OPD and IPD of Sri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital, Hassan, Karnataka and Sri Kalabyraveshwaraswamy Ayurvedic Medical College, Hospital & Research Center, Bengaluru, Karnataka were selected for the study.
- **Medicine Source:** *Karpasasthyadi Taila* was prepared from S.D.M. Ayurveda Pharmacy, Kuthpady, Udupi. The Analytical studies were conducted in SDM Centre for Research in Ayurveda and Allied sciences, Kuthpady, Udupi, Karnataka, India.

Method of Collection of Data

- Patients were selected randomly on the basis of clinical examination. A special proforma containing details necessary for the study was prepared.

- Clinical study was done by adopting *GreevaBasti* using *Karpasasthyadi Taila* to the patients of Cervical Spondylosis.

Diagnostic Criteria

- Patients presenting with signs and symptoms of Cervical Spondylosis.
- The diagnosis was radiologically confirmed through X-ray of the Cervical Spine-AnteroPosterior and Lateral view.

Inclusion Criteria

- Patients of both genders between the age group of 16-70 years.
- Patients having the signs and symptoms of Cervical Spondylosis.
- Patients who are fit for *Swedana.*

Exclusion Criteria

- Patients with major systemic disorders that may interfere with the course of treatment.
- Traumatic, infective and neoplastic conditions of spine.
- Patients who are undergoing other modalities of treatment.

Design of the Study

- It is an open observational clinical study of *GreevaBasti* with *Karpasasthyadi Taila* in the management of Cervical Spondylosis where in pre-test and post-test design was done.
- **Sample Size:** 50 patients fulfilling the inclusion criteria were selected for the study and were subjected to *GreevaBasti* with *Karpasasthyadi Taila.*
- The data collected and complied in the study were sorted out, compared & analyzed by subjecting to statistical methods such as 'Wilcoxon signed Rank Test' to assess the therapeutic effect of *GreevaBasti* on subjective and objective parameters of Cervical Spondylosis.

Duration of Study

- *GreevaBasti* for 7 days (30 minutes per day).
- Total duration of study was for 7 days.

Investigations

- Blood for Haemoglobin%, Total Count, Differential Count, Erythrocyte Sedimentation Rate and Random Blood Sugar.
- X-ray of the Cervical Spine - AnteroPosterior and Lateral view was taken before the treatment to confirm the diagnosis.

Intervention

- *PoorvaKarma* – Position of patient and Preparation of Dough.
- *PradhanaKarma – GreevaBasti* using *Karpasasthyadi Taila*.
- *PaschatKarma – Sthanika Abhyanga* followed by *Nadi Sweda*.

ASSESSMENT CRITERIA

Subjective & Objective Parameters include the clinical grading and standard scoring method of signs and symptoms of the condition. These data were collected before the commencement of treatment & after the completion of 7 days of treatment. The statistical test **'Wilcoxon signed Rank Test'** was applied through the software **SPSS for windows (version 20.0)**.

Table 1: Showing the Assessment parameters of Cervical Spondylosis[7]

Subjective Parameters	Objective Parameters
Neck Pain	Tenderness over Cervical region
Radiation of Pain	Painful Neck Movements
Neck Stiffness	Sensory Loss
Weakness	Power

Parasthesia	Reflexes
Clumsy Finger Movements	Neck Disability Index
Vertigo	

OBSERVATIONS

Table 2: Showing the Observations of the Clinical Study

Sl.No.	OBSERVATION		NO. OF PATIENTS	PERCENTAGE (%)
01.	**Age**	31 - 40 years	9	18.0%
		41 - 50 years	14	28.0%
		51 - 60 years	16	32.0%
		61 - 70 years	11	22.0%
02.	**Sex**	Male	23	46.0%
		Female	27	54.0%
03.	**Religion**	Hindu	48	96.0%
		Muslim	01	2.0%
		Jain	01	2.0%
04.	**Education**	Uneducated	03	6.0%
		Primary School	02	4.0%
		Middle School	01	2.0%
		High School	14	28.0%
		Pre-University	10	20.0%
		Graduation	20	40.0%
05.	**Occupation**	Labour	01	2.0%
		Business	15	30.0%
		Service	11	22.0%
		Home makers	23	46.0%
06.	**Socio-economic status**	Lower Middle	02	4.0%
		Middle	24	48.0%
		Upper Middle	22	44.0%
		Rich	02	4.0%
07.	**Marital status**	Married	48	96.0%
		Widow	02	4.0%
08.	***Desha***	*Jangala*	04	8.0%
		Anupa	01	2.0%
		Sadharana	45	90.0%

SAMYAK SWINNA LAKSHANAS:

Table 3: Showing the *Samyak Swinna Lakshanas* of *GreevaBasti*

Samyak Lakshana	**Day 1**	**Day 2**	**Day 3**	**Day 4**	**Day 5**	**Day 6**	**Day 7**
Sheeta Uparama	50	50	50	50	50	50	50
	100%	100%	100%	100%	100%	100%	100%

Shoola Uparama	08	18	27	33	41	47	50
	16%	36%	54%	66%	82%	94%	100%
Stambha Nigraha	10	19	27	36	47	50	50
	20%	38%	54%	72%	94%	100%	100%
Gourava Nigraha	7	17	24	38	43	46	50
	14%	34%	48%	76%	86%	92%	100%
Mardavata	16	29	35	40	47	50	50
	32%	58%	70%	80%	94%	100%	100%
Twak Prasada	20	28	37	39	43	47	50
	40%	56%	74%	78%	86%	94%	100%
Laghutwa	7	17	24	38	43	46	50
	14%	34%	48%	76%	86%	92%	100%
Sroto Nirmalatwa	20	28	37	39	43	47	50
	40%	56%	74%	78%	86%	94%	100%
Sweda Srava	50	50	50	50	50	50	50
	100%	100%	100%	100%	100%	100%	100%
Agni Deepti	0	0	0	0	0	0	0
	0%	0%	0%	0%	0%	0%	0%
Bhakta Shraddha	0	0	0	0	0	0	0
	0%	0%	0%	0%	0%	0%	0%
Nidra Haani	0	0	0	0	0	0	0
	0%	0%	0%	0%	0%	0%	0%
Tandra Haani	0	0	0	0	2	2	2
	0%	0%	0%	0%	4%	4%	4%
Jaadya Prashamana	0	0	0	0	2	2	2
	0%	0%	0%	0%	4%	4%	4%
Sheetaartitwa	0	0	0	0	0	0	0
	0%	0%	0%	0%	0%	0%	0%
Sandhi Cheshta	3	9	17	26	38	41	45
	6%	18%	34%	52%	76%	82%	90%
Vyadhi Haani	08	18	27	33	41	47	50
	16%	36%	54%	66%	82%	94%	100%

All the patients presented with *Samyak Swinna Lakshanas*. None of the patients developed any of the *ayoga* or *atiyoga lakshanas*. No Adverse Drug Reaction was noticed.

Table 4: Showing the mean of maximum temperature of *Taila* tolerated on each day of treatment

Day of Treatment	**Day 1**	**Day 2**	**Day 3**	**Day 4**	**Day 5**	**Day 6**	**Day 7**
Temperature in Celsius	42.33	42.47	42.56	42.70	42.72	42.66	42.58
Mean temperature of 7 days of treatment = 42.57 ^{0}C							

Table 5: Showing the mean of maximum temperature of *Taila* tolerated based on Gender

GENDER	**Number of Patients**	**% of Patients**	**Mean Temperature**
Male	23	46.0%	42.99 ^{0}C
Female	27	54.0%	42.20 ^{0}C

Table 6: Showing the mean of maximum temperature of *Taila* tolerated based on *Prakruti*

PRAKRUTI	**Number of Patients**	**% of Patients**	**Mean Temperature**
Vata	01	2.0%	43.84 ^{0}C
Pitta	01	2.0%	39.25 ^{0}C
Kapha	05	10.0%	42.76 ^{0}C
VataPitta	19	38.0%	42.41 ^{0}C
VataKapha	18	36.0%	42.99 ^{0}C
PittaKapha	06	12.0%	41.95 ^{0}C

Table 7: Showing the mean of maximum temperature of *Taila* tolerated based on *Rutu*

RUTU	**Number of Patients**	**% of Patients**	**Mean Temperature**
Shishira	08	16.0%	43.98 ^{0}C
Vasanta	07	14.0%	41.65 ^{0}C
Greeshma	07	14.0%	40.53 ^{0}C
Varsha	13	26.0%	42.70 ^{0}C
Sharad	08	16.0%	42.93 ^{0}C
Hemanta	07	14.0%	43.23 ^{0}C

Table 8: Showing the mean of maximum temperature of *Taila* tolerated based on *Desha*

DESHA	**Number of Patients**	**% of Patients**	**Mean Temperature**
Jangala	04	8.0%	42.56 ^{0}C
Anupa	01	2.0%	43.07 ^{0}C
Sadharana	45	90.0%	42.56 ^{0}C

RESULTS

Table 9: Showing the Results of Wilcoxon Signed Rank Test on Signs & Symptoms of Cervical Spondylosis

Sl. No.	**VARIABLE**	**Ranks**	**N**	**Mean Rank**	**Sum of Ranks**	**Z Value**	**P Value**	**Result**
01.	Neck Pain	NR	48	24.50	1176	-6.216	< 0.001	S
		PR	0	0.00	0.00			
02.	Radiation of Pain	NR	37	19.00	703	-5.518	< 0.001	S
		PR	0	0.00	0.00			
03.	Neck Stiffness	NR	35	18.00	630	-5.445	< 0.001	S
		PR	0	0.00	0.00			
04.	Weakness	NR	15	8.00	120	-3.690	< 0.001	S
		PR	0	0.00	0.00			
05.	Parasthesia	NR	19	10.00	190	-4.359	< 0.001	S
		PR	0	0.00	0.00			
06.	Clumsy Finger Movements	NR	21	11.00	231	-4.413	< 0.001	S
		PR	0	0.00	0.00			
07.	Vertigo	NR	18	9.50	171	-4.243	< 0.001	S
		PR	0	0.00	0.00			
08.	Tenderness	NR	28	14.50	406	-4.770	< 0.001	S
		PR	0	0.00	0.00			
09.	Painful Neck Movements	NR	45	23.00	1035	-5.886	< 0.001	S
		PR	0	0.00	0.00			

10.	Sensory Loss	NR	3	2.00	6	-1.732	> 0.05	NS
		PR	0	0.00	0.00			
11.	Power of Shoulder	NR	0	0.00	0.00	-4.243	< 0.001	S
		PR	18	9.50	171			
12.	Power of Elbow	NR	0	0.00	0.00	-4.243	< 0.001	S
		PR	18	9.50	171			
13.	Power of Wrist	NR	0	0.00	0.00	-3.162	< 0.001	S
		PR	10	5.50	55			
14.	Power of Forearm	NR	0	0.00	0.00	-3.464	< 0.001	S
		PR	12	6.50	78			
15.	Power of Fingers	NR	0	0.00	0.00	-3.464	< 0.001	S
		PR	12	6.50	78			
16.	Biceps Reflex	NR	1	2.00	2.00	-0.577	> 0.05	NS
		PR	2	2.00	4.00			
17.	Triceps Reflex	NR	1	2.00	2.00	-0.577	> 0.05	NS
		PR	2	2.00	4.00			
18.	Supinator Reflex	NR	0	0.00	0.00	-1.414	> 0.05	NS
		PR	2	1.50	3.00			
19.	Neck Disability Index	NR	44	22.50	990	-6.078	< 0.001	S
		PR	0	0.00	0.00			

The results of the study revealed that *GreevaBasti* showed statistically significant result on variables Neck Pain, Radiation of Pain, Neck Stiffness, Weakness, Parasthesia, Clumsy Finger Movements, Vertigo, Tenderness, Painful Neck Movements, Power of Shoulder, Elbow, Wrist, Forearm, Fingers & Neck Disability Index; and statistically no significant result on variable Sensory Loss, Biceps Reflex, Triceps Reflex & Supinator Reflex. All the patients in the present study developed *Samyak Swinna Lakshanas*. The mean of maximum temperature of *Taila* tolerated by patients in the entire course of *GreevaBasti* was 42.57^0C.

DISCUSSION

'Vatasyopakramaha Snehaha Swedaha' - *Snehana* and *Swedana* are the first and foremost treatment modality in *Vataja Vikara* such as degenerative disorders. *GreevaBasti*, as an external therapeutic measure which produces *sthanika snehana* and *swedana* effect was adopted in the management of Cervical Spondylosis. *GreevaBasti* can be considered as *Bahya Snehana* as *ShiroBasti* explained under *Murdhni Taila* is mentioned under *Bahya Snehana*. Meanwhile, it is considered as *Swedana* as it involves the usage of heated *Taila* which induces *swedana* effect and relieves *shula, stambha, sheeta* and *gourava*. Here, we may state that *GreevaBasti* can be considered under the heading of *Sneha yukta Swedana* or *Snigdha Swedana*. The selection of *Bahya Snehana* and *Swedana* is primarily based on the site of pathology and relevance of *GreevaBasti* can be justified as it is applied directly over the affected region, the cervical spine. *GreevaBasti* is a *Bahya Shamana Chikitsa* of Retaining type that exerts both *Bahya Snehana* and *Swedana* effect. *GreevaBasti* can be considered under *Bahya Snehana, Saagni Sweda, Ekanga Sweda, Snigdha Sweda, Madhyama Sweda, Samshamaneeya Sweda, Drava Sweda* and with restricted sense of both *Avagaha* and *Pariseka Sweda*. The temperature of Taila was recorded using digital thermometer with features of temperature measurement ranging -50^0C to $+300^0$C / -58^0F to $+572^0$F with temperature accuracy $\pm1^0$C / 1^0F. The reading of maximum tolerated temperature of Taila in the pooled GreevaBasti ring

was recorded by dipping the tip of the digital thermometer during the procedure as and when the reheated Taila was poured inside the ring. In the present study, the patients of *Vata prakruti, VataKapha prakruti* and *Kapha prakruti* tolerated maximum temperature in comparison to other *Prakruti* which reflects the predominance of *sheeta* quality of *vata* and *kapha* enables those patients to withstand more temperature. The maximum temperature was tolerated by patients who underwent *GreevaBasti* during *Shishira Rutu* and *Hemanta Rutu* who tolerated the maximum mean temperature of 43.98^0C and 43.23^0C respectively which reflects the fact that seasonal variation in terms of cold weather enabled those patients to tolerate more temperature. *GreevaBasti* performed to patients belonged to both *Sadharana Desha* and *Jangala Desha* tolerated maximum mean temperature of 42.56^0C. Male patients tolerated maximum mean temperature of 42.99^0C whereas Female patients tolerated maximum mean temperature of 42.20^0C which reflects the fact that males have more endurance to withstand more temperature than females. In toto, the mean of maximum temperature of *Taila* tolerated by patients in the entire course of *GreevaBasti* was 42.57^0C. *'Harsha Toda Ruk Ayama Shotha Stambha Grahadayah, Swinnasya Ashu Prashamyanti Mardavam Cha Upajayate'* (*Ch.Chi*.28/80) and *'Sweda Saadyah Prashamyanti Gada VataKaphatmakah'* (*Ch.Su.*14/3) highlights the role of *GreevaBasti* in strengthening the cervical spine, neck muscles and ligaments thereby relieving most of the signs and symptoms of cervical spondylosis. *GreevaBasti* is considered under *Snigdha Swedana* and the *Snigdha* as well as *Ushna gunas* of the procedure acts against *Ruksha* and *Sheeta gunas* of *Vata.* The procedure exerts *Srotasam Nirmalatwa* effect at the level of cervical spine which facilitates better blood supply to the affected area thereby leading to symptomatic improvement. The combined effect of *Sthanika Snehana, Swedana* and *Shamana* action achieved throughout the entire course of *GreevaBasti* by virtue of its local effect over cervical region results in improvising the condition thereby relieving the signs and symptoms of Cervical Spondylosis.

CONCLUSION

Cervical Spondylosis is a degenerative condition of the cervical spine presenting with neck pain that reduces the human activity. *GreevaBasti* is a unique procedure comprising of both *bahya snehana* and *swedana* wherein heat is applied to the cervical region by retaining warm medicated oil within a specially formed frame made out of *Masha* flour. The formulation *Karpasasthyadi Taila* described in *Sahasrayoga* is specifically indicated in the treatment of *Vata Vyadhi* and can be used for external modality of treatment such as *GreevaBasti* to treat Cervical Spondylosis. The main principle of management was to relieve the degenerative clinical manifestations of Cervical Spondylosis by imparting *Snehana, Swedana* and *Shamana* effect through a *Bahi Parimarjana* modality of treatment in the form of *GreevaBasti* using *Karpasasthyadi Taila*. The present clinical study revealed statistically significant result of *GreevaBasti* with *Karpasasthyadi Taila* on most of the subjective and objective parameters of Cervical Spondylosis.

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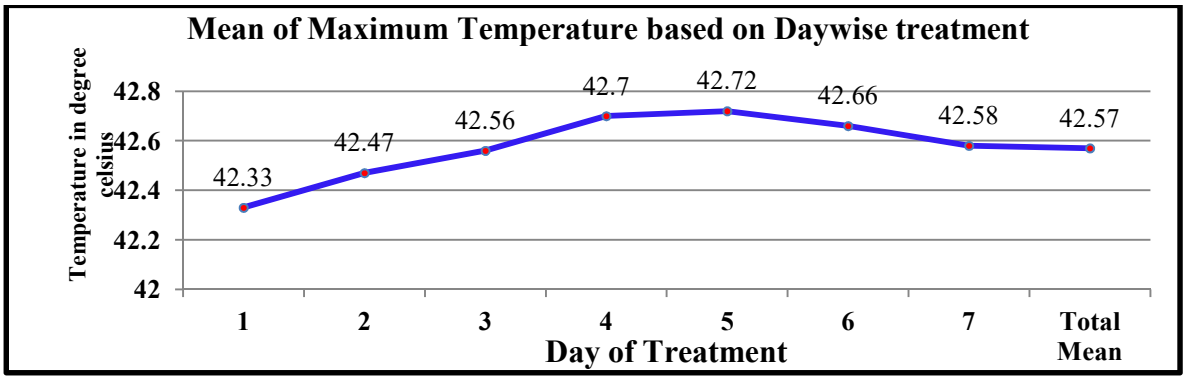

Figure 1: Showing Mean of Maximum Temperature based on Day wise Treatment

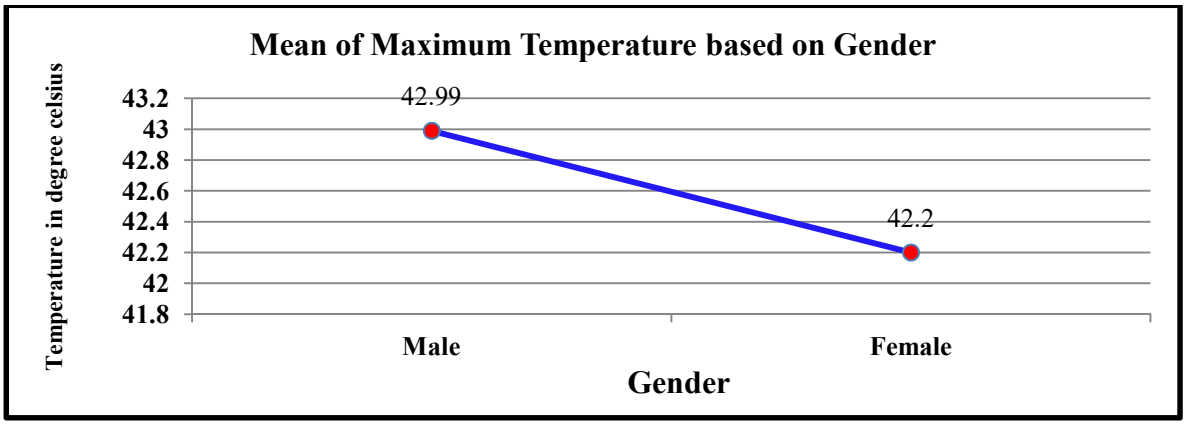

Figure 2: Showing Mean of Maximum Temperature based on Gender

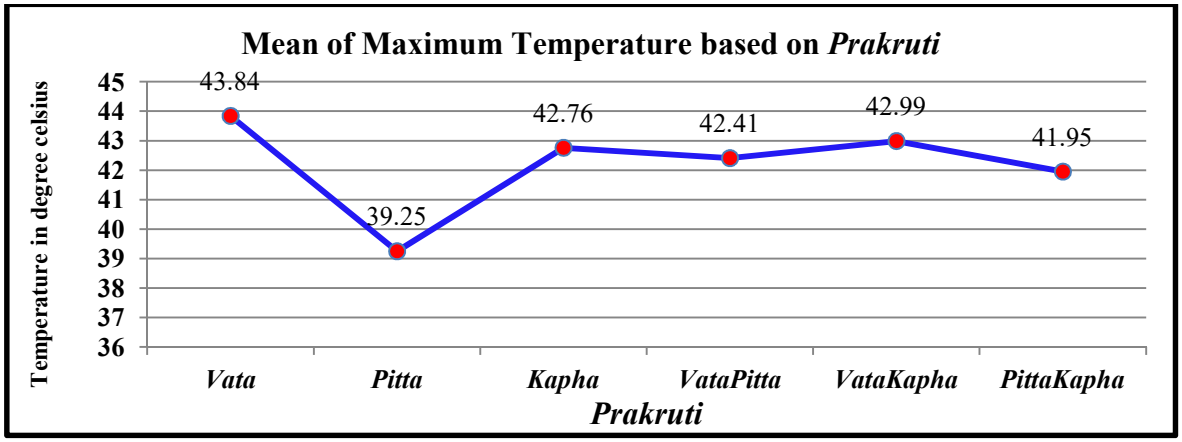

Figure 3: Showing Mean of Maximum Temperature based on *Prakruti*

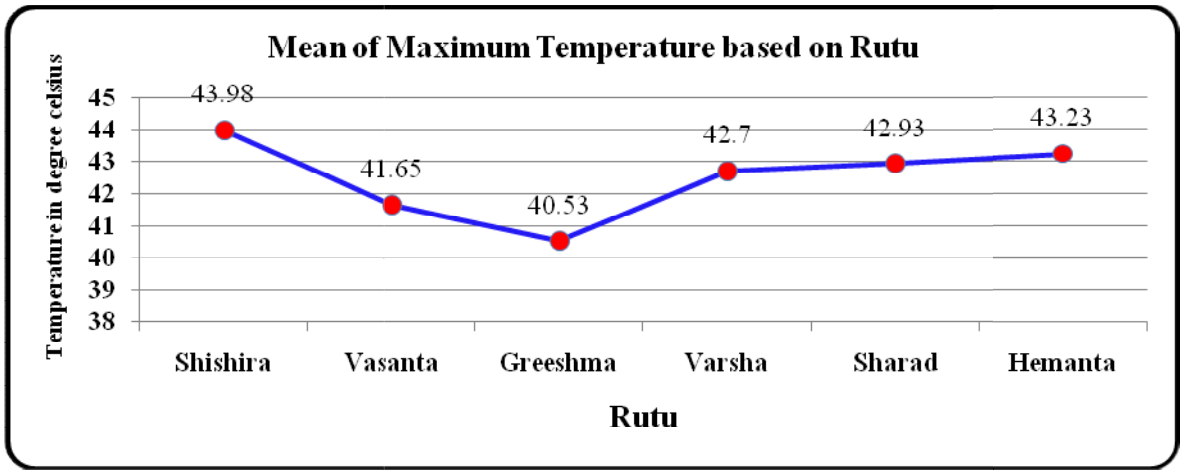

Figure 4: Showing Mean of Maximum Temperature based on *Rutu*

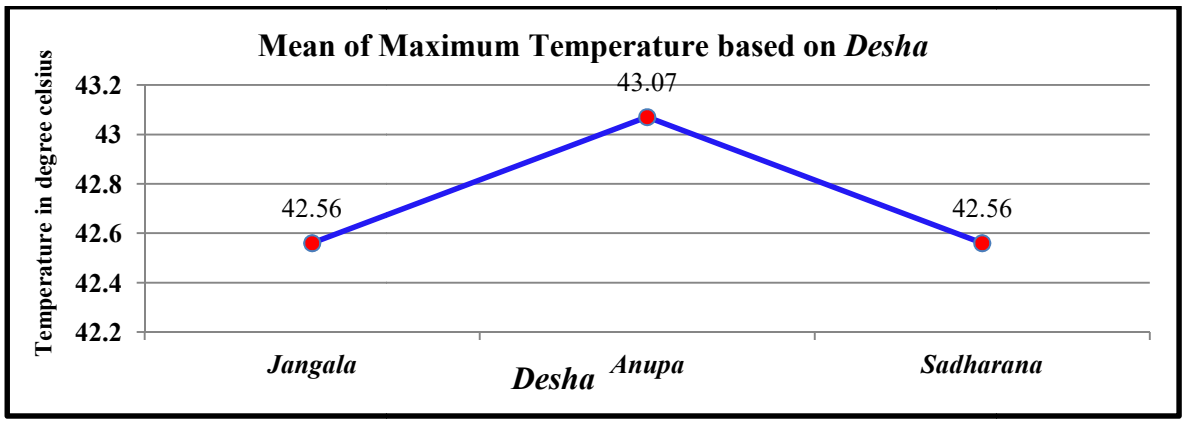

Figure 5: Showing Mean of Maximum Temperature based on *Desha*

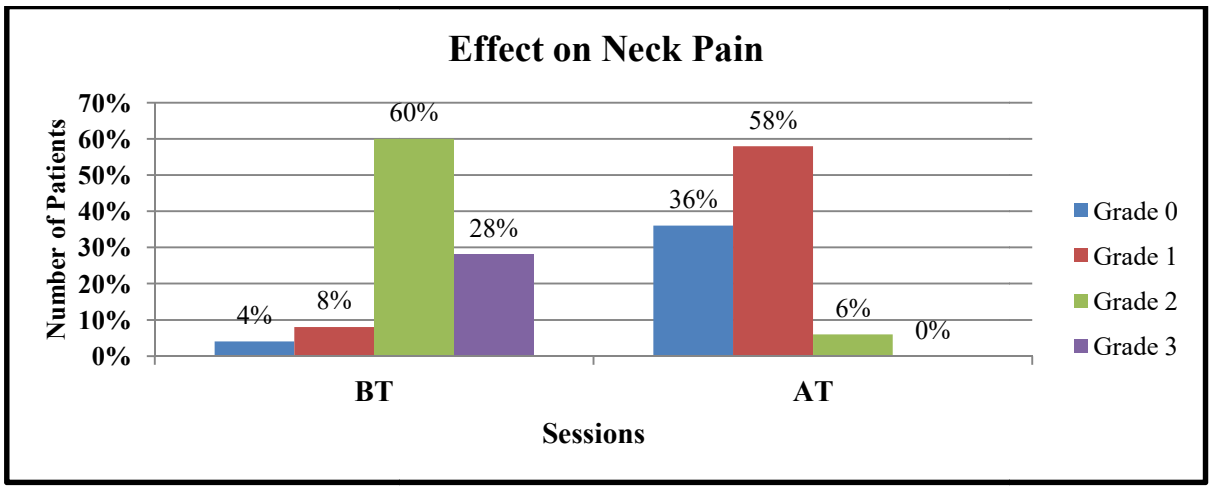

Figure 6: Showing the effect of *GreevaBasti* on Neck Pain

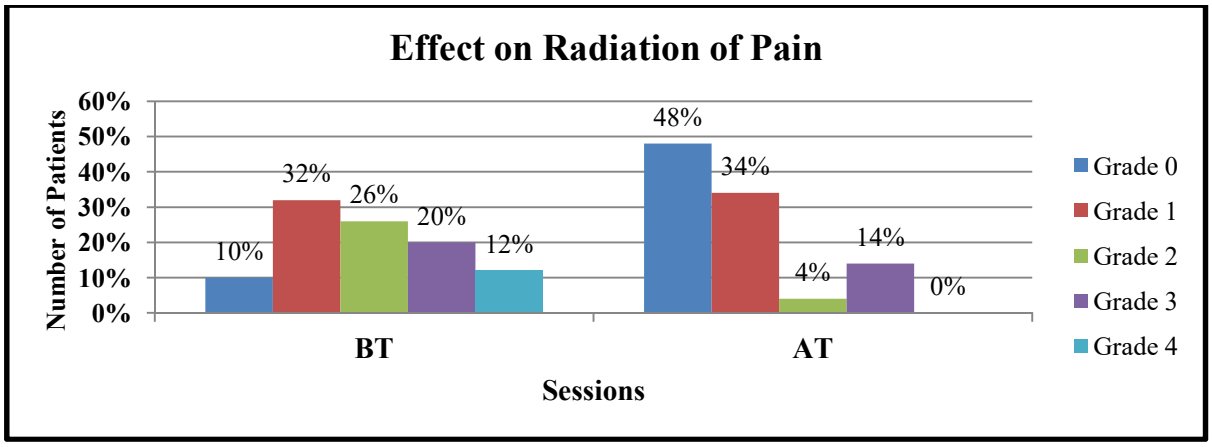

Figure 7: Showing the effect of *GreevaBasti* on Radiation of Pain

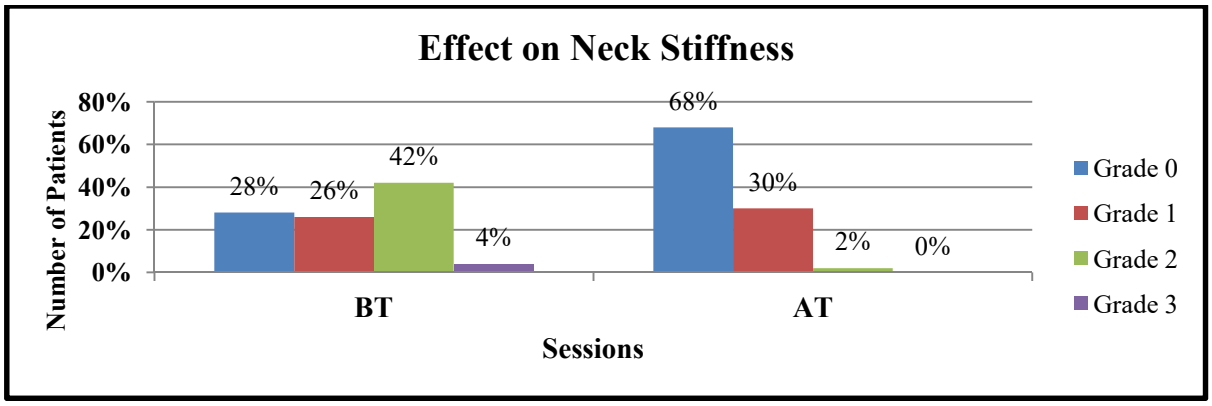

Figure 8: Showing the effect of *GreevaBasti* on Neck Stiffness

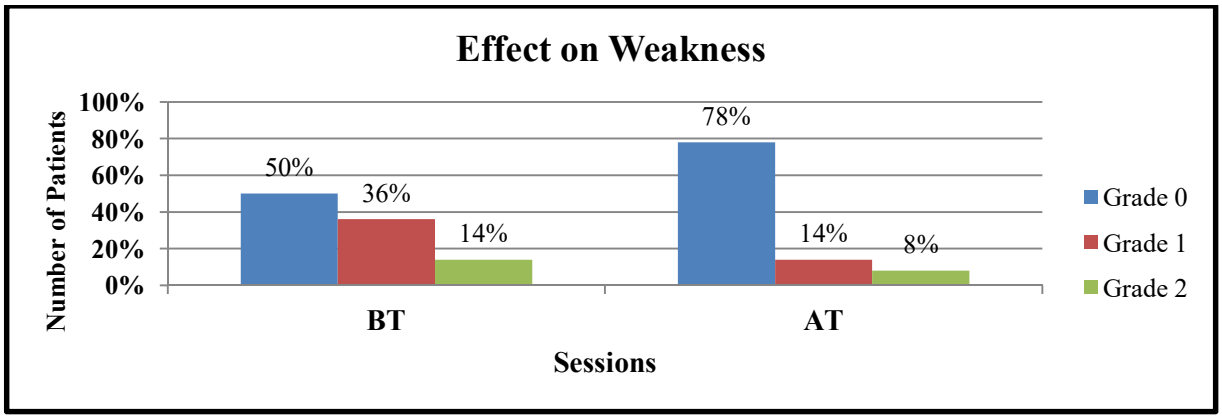

Figure 9: Showing the effect of *GreevaBasti* on Weakness

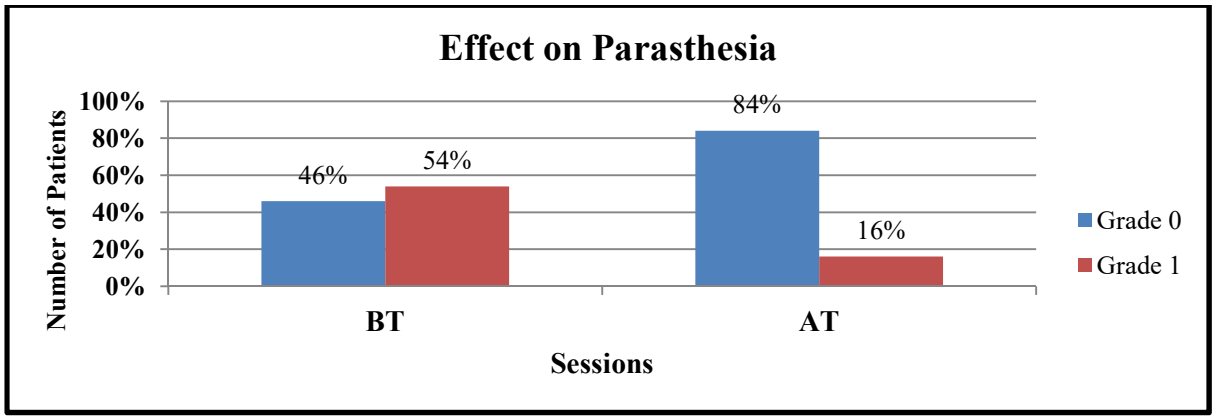

Figure 10: Showing the effect of *GreevaBasti* on Parasthesia

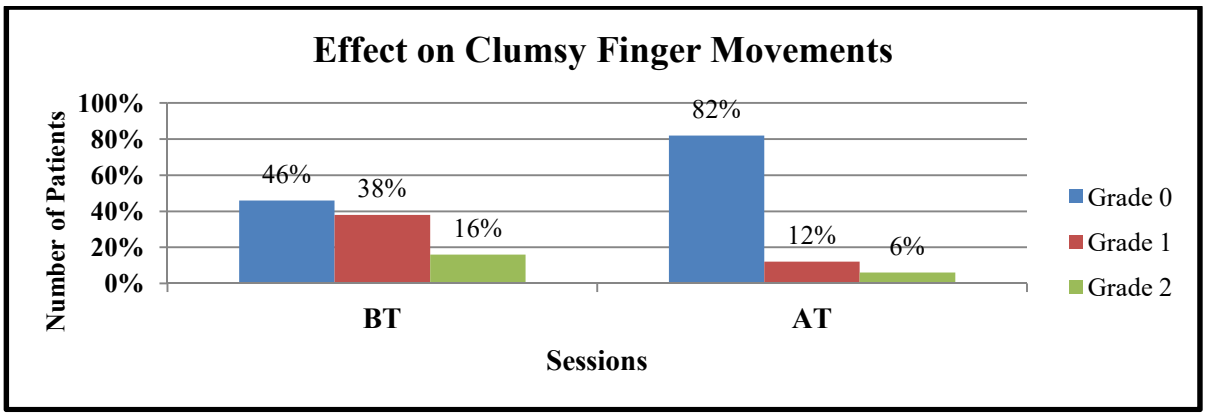

Figure 11: Showing the effect of *GreevaBasti* on Clumsy Finger Movements

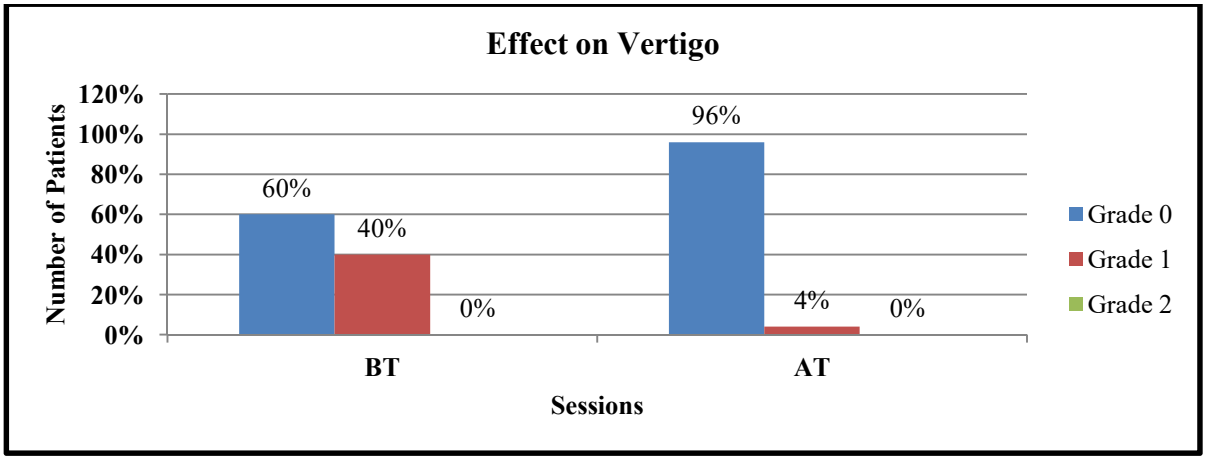

Figure 12: Showing the effect of *GreevaBasti* on Vertigo

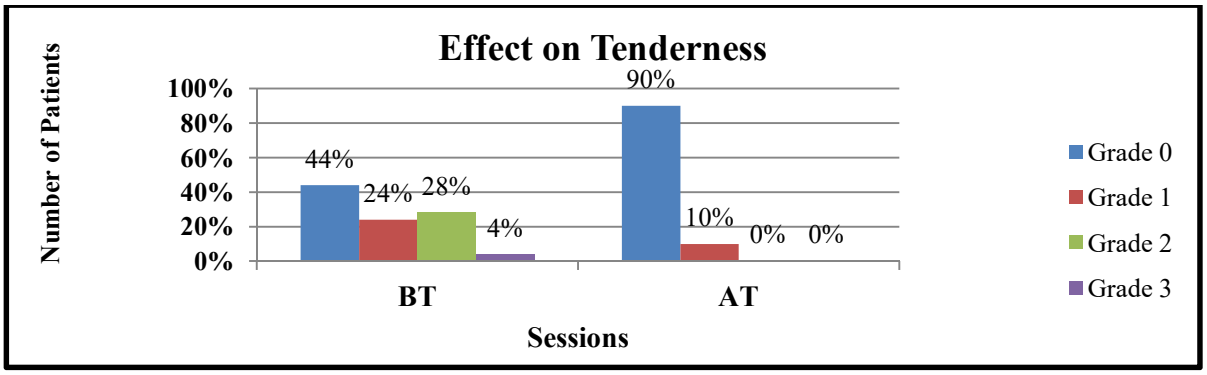

Figure 13: Showing the effect of *GreevaBasti* on Tenderness

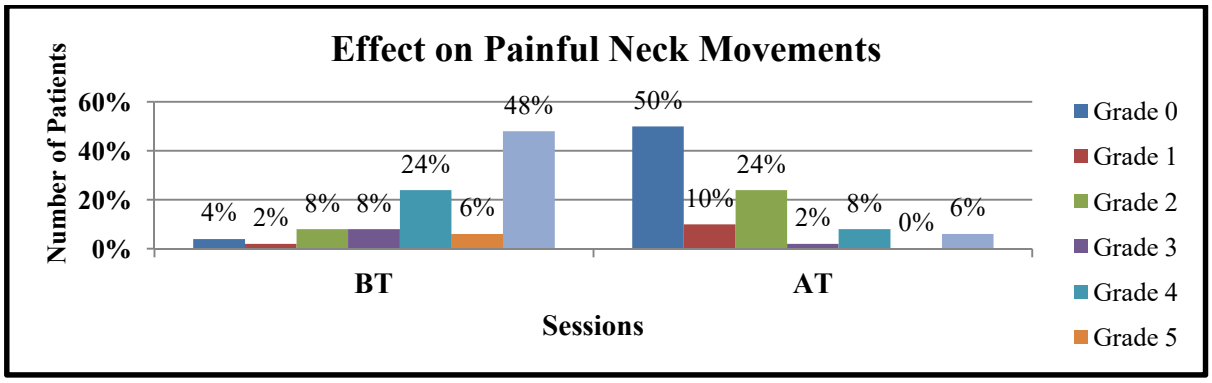

Figure 14: Showing the effect of *GreevaBasti* on Painful Neck Movements

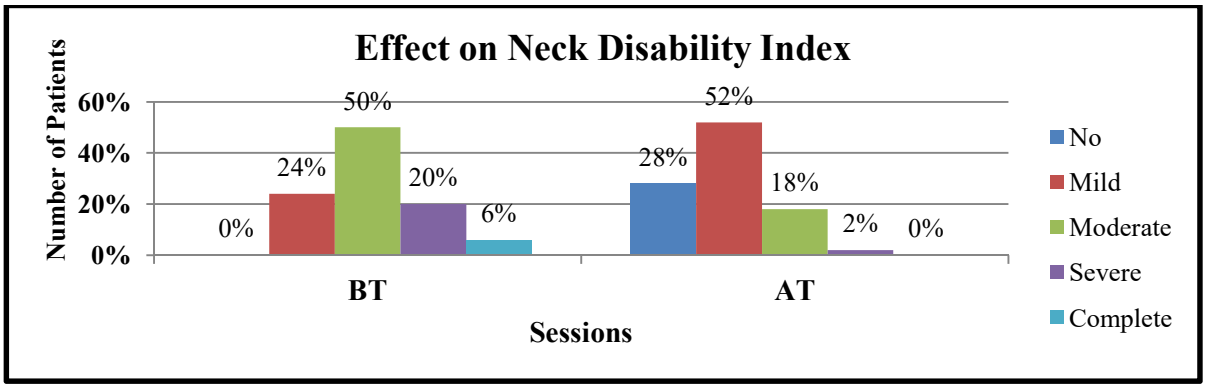

Figure 15: Showing the effect of *GreevaBasti* on Neck Disability Index

Source of Support: Nil
Conflict Of Interest: None Declared

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